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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,879	01/06/2006	Celine Poncet-Legrand	0070557-000003	9683

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EXAMINER

INYARD, APRIL C

ART UNIT	PAPER NUMBER
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1794

NOTIFICATION DATE	DELIVERY MODE
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05/13/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/533,879	Applicant(s) PONCET-LEGRAND ET AL.	
	Examiner APRIL C. INYARD	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
 4a) Of the above claim(s) 15-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 39 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

This second final action is in response to the Amendment filed on 01/30/2009.

Amendments to claims 1 and 6, and withdrawal of claims 15-38 have been entered in the above identified application.

Response to Amendment

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Applicant's amendment to Claim 6 is acknowledged and has been entered in the above-identified application. The objection to Claim 6 is therefore withdrawn.
3. It is noted that the word "nodule" was added to claim 1, line 7, but was not underlined. The amendment has been entered and considered on the merits to advance prosecution.
4. Applicant's amendment(s)/arguments are not considered to be persuasive in overcoming the cited prior art. Currently, Claims 1-14 and 39 are pending and have been considered as follows:

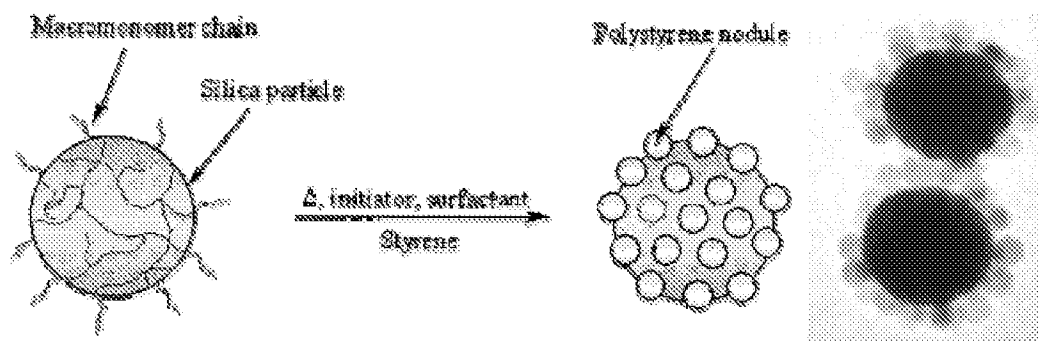
Claim Rejections - 35 USC § 102

5. **Claims 1-11 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Shiratsuchi (US Patent No. 5,856,379) for the reasons stated in the Office Action mailed on October 31, 2008.**
6. **Claims 1-3, 5-10, 12, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Reculosa et al. (Chem. Mater. 14:2354-2359, published online 04/27/2002).**

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The Examiner makes note of Applicant's amendment of claim 1 to include the limitation that the "organic part is a substantially spherical nodule", which changes the scope of Claim 1 and its dependent claims.

Reculusa discloses hybrid inorganic-organic nanoparticles and an emulsion polymerization method of making them (*Abstract*; p. 2354, Col 2, par. 3). The particles are made from a nanosized silica seed particle that is either 500 nm (*Materials and Methods*, p. 2355), and a macromonomer poly(ethylene glycol) monomethyl ether methacrylate is adsorbed to the silica seed surface to promote anchoring followed by subsequent polymerization of polystyryl radicals on the surface of the silica to form polystyrene latex nodules around 200 nm in diameter (p. 2355, Col 1, par 3; p. 2357, section "Hybrid Latex Particles"; Figures 4 and 6B shown below):



Reculusa discloses that the final morphology of the nanohybrids is strongly dependent on the presence of the adsorbed macromonomer (*Conclusion*), and that the size of the polystyrene latex particles can be tuned through use of a surfactant in the emulsion (*Materials and Methods*, *Hybrid Particle Synthesis*, p. 2356, par. 1).

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The hybrid inorganic-organic particle of Reculusa has a total size that is nanometric or mesoscopic, and has a dissymmetric morphology.

The seed particle of Reculusa corresponds to Applicant's claimed inorganic material A that is a mineral oxide, silica.

The nodules disclosed by Reculusa are bound to the silica and are comprised of polystyrene latex, which are recurrent units derived from a vinyl compound, and thus corresponds to Applicant's claimed organic material B.

The silica particles are either 500 nm, and the nodules are about 200 nm, therefore each of the parts is between 5 nm and 1000 nm.

There is no minimum or maximum number of nodules disclosed by Reculusa bound to the silica particle, and given the difference in size between the nodule and silica, such a composite particle is hence dissymmetric.

Therefore, Reculusa clearly teaches a dissymmetric particle that reads on Applicant's **Claims 1, 3, and 10.**

Regarding **Claim 2**, as Reculusa teaches that the silica particle diameter is 500 nm, and the nodules are about 200 nm, the Examiner takes the position that the total particles size falls within Applicant's claimed ranged of between 100 nm and 1000 nm, and thus meets the limitations of Claim 2.

Regarding **Claim 5**, Reculusa discloses that macromonomer poly(ethylene glycol) monomethyl ether methacrylate is adsorbed to the silica seed surface to promote anchoring followed by subsequent polymerization of polystyryl radicals on the surface of the silica to form polystyrene latex nodules around 200 nm in diameter (*p. 2355, Col 1, par 3; p. 2357, section*

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"Hybrid Latex Particles"; Figures 4 and 6B and related text). Therefore the inorganic material, silica, bears an organic group and meets the limitations of the instant claim.

Regarding **Claims 6-9 and 14**, Reculusa discloses polymerization of styrene latex onto an inorganic silica seed particle, where polystyrene latex is a derivative of vinyl, having alkyl and aryl groups And thus meets the limitations of Claims 5-9 and 14.

Regarding **Claim 12**, as Reculusa discloses that the organic polystyrene latex nodules are not the same size as the inorganic silica particle, the Examiner deems that Reculusa teaches that the inorganic and organic parts have sizes clearly different from each other and thus meet the limitation of the claimed snowman shape.

Claim Rejections - 35 USC § 103

7. Claims 13 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiratsuchi (US Patent No. 5,856,379) in view of Eriyama (US Patent No. 6,160,067 A) for the reasons stated in the Office Action mailed on October 31, 2008.

8. Claims 1-3, 5-10, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reculusa et al. (*Chem. Mater.* 14:2354-2359, published online 04/27/2002).

Regarding Claims 11, 13, and 39, As discussed above, Reculusa teaches a particle that meets the limitations of Claims 1 and 10.

Reculusa fails to specifically teach that the inorganic part has the shape of a dumbbell, snowman, ellipse, disk, block, or rod.

However, Reculusa teaches that various experiments are underway to study the phenomenon at several scales with silica particles of various sizes in addition to observing the influence of parameters such as the nature of the surfactant, the length of the macromonomer, and the various concentrations of the involved compounds (*Conclusion, p. 2359*), where such particles are useful in a variety of applications such as gas-liquid chromatography, paint, and catalyst supports (*p. 2354, Col 2, par. 3*).

The Examiner notes that as discussed above, the size of the silica particle taught by Reculusa is 500 nm, and 200 nm for the polystyrene nodule. The scale for the organic polystyrene nodule is encompassed by Applicant's size in Claim 39, and Reculusa discloses experimentation using silica particles of various sizes and scales.

It would have therefore been obvious to one having ordinary skill in the art at the time the invention was made to modify the dissymmetric particle taught by Reculusa by changing various experimental parameters that control the sizes and shapes of each of the parts of the particle given the teaching in Reculusa to do so, and it would be obvious to try synthesizing any variety of particle shapes and sizes depending on the desired end use application of the particles. Moreover, Reculusa discloses the claimed invention except for the various claimed shapes and sizes for each of the particle parts. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the shapes and sizes of each of the dissymmetric particle parts, since it has been held that the configuration was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration claimed was significant, and since such a modification would have involved a mere change in the size of a component as a change in size is generally

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recognized as being within the level of ordinary skill in the art.. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). *Gardner v. TEC Systsems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 569 U.S. 830, 225 USPQ 232 (1984).

Furthermore, the Examiner notes that absent any functional criticality of the shape of either of the parts, it has been held that matters relating to ornamentation only which have no mechanical function cannot be relied upon to patentably distinguish the claimed invention from the prior art. *In re Seid*, 161 F.2d 229, 73 USPQ 431 (CCPA1947).

Response to Arguments

9. Applicant's arguments filed 01/30/2009 have been fully considered but they are not persuasive.
10. Regarding the rejection of Claims 1-11 and 14 under 35 U.S.C. 102(b) as being anticipated by Shiratsuchi (US Patent No. 5,856,379):

Applicant first argues that Shiratsuchi fails to teach the claimed invention because Shiratsuchi discloses a core/shell-type composite particle that is symmetric and not dissymmetric.

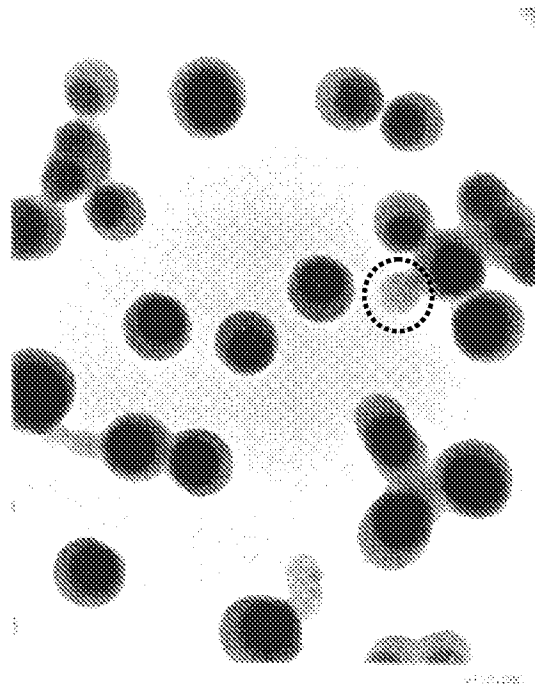
The Examiner respectfully disagrees. As presently claimed, Applicant does not specifically require that part A be purely made of inorganic material, and that part B be purely made of organic material.

The limitations on which the Applicant relies (i.e., part A is purely inorganic, and part B is purely organic) are not stated in the claims. It is the claims that define the invention, and it is

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claims, not specifications that are anticipated. *Constant v. Advanced Micro-Devices Inc.*, 7 USPQ2d 1064.

Therefore, given the broadest reasonable interpretation, the Examiner respectfully points out that the particles depicted in Fig. 2 of Shiratsuchi below each have an inorganic material A (dark part, silica), and organic material B (lighter part, organoalkoxysilane / vinyl), where the lighter organic part forms a spherical shape or nodule about the darkened inorganic core. In some instances, several particles are attached, which can be interpreted as a particle with two parts. Although each of the parts may indeed each have an inorganic and organic core/shell composite, this still reads on Applicant's claim because the claim does not exclude each of the parts from having additional components. Furthermore, the Examiner points out that the particles produced by Shiratsuchi are not all similar, and that the organic part is rather non-uniformly polymerized for each particle, where in some cases the organic part indeed protrudes in one direction (see circled portion below):



Shiratsuchi Fig. 2

Therefore, the Examiner maintains that Shiratsuchi discloses dissymmetric particles that read on Applicant's Claim 1.

Applicant next argues on p. 16, that Shiratsuchi is non-analogous art, and thus does not teach or suggest the claimed subject-matter.

However, the Examiner respectfully points out that rejections made under 35 USC 102(b) are anticipatory of the claimed subject matter, where as non-analogousness is only relevant to matters of obviousness, and thus rejections made under 35 USC 103(a).

The Examiner therefore maintains the rejection of **Claims 1-11 and 14 under 35 U.S.C. 102(b) as being anticipated by Shiratsuchi (US Patent No. 5,856,379).**

11. Regarding the rejection of Claims 13 and 39 under 35 U.S.C. 103(a) as being unpatentable over by Shiratsuchi in view of Eriyama:

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Applicant argues that because Shiratsuchi does not meet the limitations of Claim 1, that Eriyama does not cure the deficiencies of Shiratsuchi.

However, the Examiner considers Applicant's arguments moot in view of the responses and rejection maintained above.

Applicant further argues on p. 17 that Eriyama teaches that the silica particles themselves have the claimed shapes (spherical, rod, plate, etc.), and that this is not a teaching of the resulting composite particles. However, as presently claimed, Claim 13 specifically limits the shape of the inorganic part, which corresponds to silica, and therefore Eriyama does cure the deficiencies of Shiratsuchi.

In response to applicant's argument that Shiratsuchi and Eriyama are nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, both Shiratsuchi and Eriyama are concerned with making inorganic-organic hybrid nanometric or mesoscopic particles, of which Shiratsuchi anticipates the dissymmetric shape as discussed above.

Therefore, the rejection of **Claims 13 and 39 under 35 U.S.C. 103(a) as being unpatentable over by Shiratsuchi in view of Eriyama is maintained.**

Conclusion

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12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to APRIL C. INYARD whose telephone number is (571) 270-1245. The examiner can normally be reached on Monday - Thursday 8:00 AM - 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Sample can be reached on (571) 272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R. Sample/
Supervisory Patent Examiner, Art Unit 1794

APRIL C INYARD /A. C. I./
Examiner, Art Unit 1794